**PRODUCT RELIABILITY REPORT
FOR**

DS2506, Rev A5

Dallas Semiconductor

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Prepared by:

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Conclusion:

The following qualification successfully meets the quality and reliability standards required of all Dallas Semiconductor products:

DS2506, Rev A5

In addition, Dallas Semiconductor's continuous reliability monitor program ensures that all outgoing product will continue to meet Maxim's quality and reliability standards. The current status of the reliability monitor program can be viewed at http://www.maxim-ic.com/TechSupport /dsreliability.html.

Device Description:

A description of this device can be found in the product data sheet. You can find the product data sheet at http://dbserv.maxim-ic.com/l_datasheet3.cfm.

Reliability Derating:

The Arrhenius model will be used to determine the acceleration factor for failure mechanisms that are temperature accelerated.

$AfT = \exp((Ea/k)*(1/Tu - 1/Ts)) = tu/ts$
AfT = Acceleration factor due to Temperature
tu = Time at use temperature (e.g. 55°C)
ts = Time at stress temperature (e.g. 125°C)
k = Boltzmann's Constant (8.617 x 10-5 eV/°K)
Tu = Temperature at Use (°K)
Ts = Temperature at Stress (°K)
Ea = Activation Energy (e.g. 0.7 ev)

The activation energy of the failure mechanism is derived from either internal studies or industry accepted standards, or activation energy of 0.7ev will be used whenever actual failure mechanisms or their activation energies are unknown. All deratings will be done from the stress ambient temperature to the use ambient temperature.

An exponential model will be used to determine the acceleration factor for failure mechanisms, which are voltage accelerated.

$AfV = \exp(B*(Vs - Vu))$
AfV = Acceleration factor due to Voltage
Vs = Stress Voltage (e.g. 7.0 volts)
Vu = Maximum Operating Voltage (e.g. 5.5 volts)
B = Constant related to failure mechanism type (e.g. 1.0, 2.4, 2.7, etc.)

The Constant, B, related to the failure mechanism is derived from either internal studies or industry accepted standards, or a B of 1.0 will be used whenever actual failure mechanisms or their B are unknown. All deratings will be done from the stress voltage to the maximum operating voltage. Failure rate data from the operating life test is reported using a Chi-Squared statistical model at the 60% or 90% confidence level (Cf).

The failure rate, Fr, is related to the acceleration during life test by:

$Fr = X/(ts * AfV * AfT * N * 2)$
X = Chi-Sq statistical upper limit
N = Life test sample size

Failure Rates are reported in FITs (Failures in Time) or MTTF (Mean Time To Failure). The FIT rate is related to MTTF by:

MTTF = 1/Fr

NOTE: MTTF is frequently used interchangeably with MTBF.

The calculated failure rate for this device/process is:

FAILURE RATE:	**MTTF (YRS):**	**143935**	**FITS:**	**0.8**
	DEVICE HOURS:	**1224944**	**FAILS:**	**0**

Only data from Operating Life or similar stresses are used for this calculation.

The parameters used to calculate this failure rate are as follows:

Cf: 60%	**Ea: 0.7**	**B: 0**	**Tu: 25**	**°C**	**Vu: 5.5**	**Volts**

The reliability data follows. At the start of this data is the device information. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available and may contain some generic data. "*" after DATE CODE denotes specific product data.

Device Information:

Process:	2P, 1M, 0.8um, EPROM, NdDSD, PdDSD/ESD , N+ESDII, WJ BPSG,
Passivation:	Laser/TEOS Ox - Pass/OxyNit -Gen.LaserP
Die Size:	119 x 122
Number of Transistors:	0
Interconnect:	Aluminum / 1% Silicon / 0.5% Copper
Gate Oxide Thickness:	175 Å

OPERATING LIFE

DESCRIPTION	DATE CODE	CONDITION	READPOINT		QTY	FAILS	FA#
INFANT LIFE	9711	125C, 6.0 VOLTS	48	HRS	392	0	
HIGH VOLTAGE LIFE	9711	125C, 6.0 VOLTS	2000	HRS	116	0	
INFANT LIFE	9722	125C, 7.0 VOLTS	48	HRS	392	0	
HIGH VOLTAGE LIFE	9722	125C, 7.0 VOLTS	1000	HRS	116	0	
INFANT LIFE	9748	125C, 6.0 VOLTS	48	HRS	392	0	
HIGH VOLTAGE LIFE	9748	125C, 6.0 VOLTS	1500	HRS	116	0	
INFANT LIFE	9804 *	125C, 7.0 VOLTS	48	HRS	345	0	
HIGH VOLTAGE LIFE	9804 *	125C, 7.0 VOLTS	1000	HRS	150	0	
HIGH VOLTAGE LIFE	9805	125C, 7.0 VOLTS	1000	HRS	116	0	
INFANT LIFE	9821	125C, 7.0 VOLTS	48	HRS	392	0	
HIGH TEMP OP LIFE	9821	125C, 5.5 VOLTS	1000	HRS	116	0	
INFANT LIFE	9852	125C, 7.0 VOLTS	48	HRS	190	0	
HIGH TEMP OP LIFE	9852	125C, 6.0 VOLTS	2000	HRS	110	0	
				Total:		**0**	

FAILURE RATE: **MTTF (YRS):** 143935 **FITS:** 0.8
DEVICE HOURS: 1224944 **FAILS:** 0